

**Notice of Allowability**

Application No.

10/748,741

Applicant(s)

KOCHER ET AL.

Examiner

Thomas K. Pham

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 5/15/2006.
2. ☒ The allowed claim(s) is/are 1-6, 8-22, 24-45 and 47-49.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                               | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date ____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date ____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material         | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|  | 9. <input type="checkbox"/> Other ____.   |

**Reasons for Allowance**

1. Claims 1-6, 8-22, 24-45 and 47-49 are allowed.
2. The following is an examiner's statement of reasons for allowance:

While Hammerstrom (U.S. Patent No. 6,765,315) discloses a control software users control multiple control variables to track and control operation of a control circuit. Each variable can be configured to operate freely and independently with no constraints, within a specified limits, maintain a specified set point, or to track variable analog input signal. The circuit can operate as the interface between two DC power systems. The DC-DC converter can be configured to perform maximum power point tracking as long as the control variables stay within an allowable range. Hammerstrom does not teach a first power flow device to control power flow between an electrical energy storage device (EESD) associated with the system and a dc bus included within the system; a reverse blocking circuit to couple an alternative energy generation device (AEGD) to the dc bus and prevent reverse current flow from the dc bus into the AEGD; an ac inverter to generate ac power from dc power supplied by the dc bus; a multivariable control circuit to monitor a set of control variables comprising two or more of an EESD voltage, an EESD current, an AEGD current, and a dc bus voltage; and other limitations related to these features in combination with the remaining elements and features of the claimed invention.

And Weimer et al. (U.S. Patent No. 5,982,156) discloses an open loop control arrangement for an electrical energy flow-controlling circuit coupling the varying terminal voltage of an energy storing capacitor to a fixed voltage direct current aircraft energy supply bus in order to supplement bus voltage transients. A plurality of electrical energy storage devices

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located at selected distributed locations disposed throughout the aircraft and connected locally to said array of electrical bus conductors at each of the selected distributed location. The electrical energy storage devices including a super capacitor element and an energy coupling electronic circuit communicating a transient flow of electrical energy from the super capacitor to the electrical bus conductors. Weiner et al. does not teach a first power flow device to control power flow between an electrical energy storage device (EESD) associated with the system and a dc bus included within the system; a reverse blocking circuit to couple an alternative energy generation device (AEGD) to the dc bus and prevent reverse current flow from the dc bus into the AEGD; an ac inverter to generate ac power from dc power supplied by the dc bus; and a multivariable control circuit to monitor a set of control variables comprising two or more of an EESD voltage, an EESD current, an AEGD current, and a dc bus voltage; and other limitations related to these features in combination with the remaining elements and features of the claimed invention.

The prior art of record fails to teach or fairly suggest to one of ordinary skill in the art at the time of the invention, in conjunction with all the other claimed limitations, a multivariable control method and apparatus having all the claimed features of applicant's instant invention, specifically including: an electrical energy storage device (EESD) associated with the system and a dc bus through a first power flow device to control power flow between the EESD and the dc bus through; a reverse blocking circuit to couple an alternative energy generation device (AEGD) to the dc bus for preventing reverse current flow from the dc bus into the AEGD, an ac inverter to generate ac power from dc power supplied by the dc bus, a multivariable control

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circuit to monitor a set of control variables comprising two or more of an EESD voltage, an EESD current, an AEGD current, and a dc bus voltage, etc., as set forth in the claims.

Also, there is no motivation to combine the Hammerstrom reference with the Weimer et al. reference to meet these limitations. It is for these reasons that applicant's invention defines over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Thomas Pham*; whose telephone number is (571) 272-3689, Monday to Thursday from 6:30 AM - 5:00 PM EST or contact Supervisor *Mr. Anthony Knight* at (571) 272-3687.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Thomas Pham**

*Patent Examiner*

A handwritten signature in black ink, appearing to read 'Thompson', with a long horizontal flourish extending to the right.

May 25, 2006